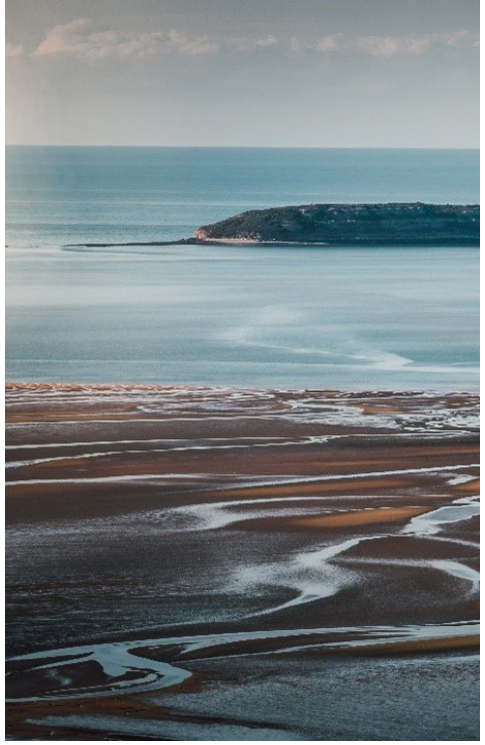
Gwasanaethau Campws
Campus Services

Environment Annual Report 2020/21



PRIFYSGOL
BANGOR
UNIVERSITY

CONTENTS

INTRODUCTION	2
BACKGROUND	3
OBJECTIVES AND TARGETS 2020/2021	4
MANAGING WASTE	5-6
ENERGY CONSUMPTION	7
WATER CONSUMPTION	8
TRAVEL AND TRANSPORT	9
CARBON, EMISSIONS AND DISCHARGES	10
BIODIVERSITY	11
CONSTRUCTION AND THE ESTATE STRATEGY	12

Thank you to Treborth Gardens and Dan Struthers for their photo contributions.

INTRODUCTION

Welcome to Bangor University's 2020/21 environment annual report. It has been a challenging and eventful year, where areas of improvement have been identified in addition to planning to deliver positive change.

Throughout the 2020/21 academic year, Covid-19 changed the way everyone worked, studied, and lived their lives. As well as being a year of disruption, it was also one for reflection, for brainstorming and for planning more thoroughly for the future.

The University is currently revising many of its strategies and trying to 'futureproof' itself for further shocks, like severe weather and changes in weather patterns caused by climate change, rising costs of energy, and tightening restrictions on greenhouse gas emissions.

The narrative and awareness of climate change and its effect on the planet has become increasingly important in all aspects of the University, making us very aware of the work there is yet to do to reach our long-term environmental targets - including Net Zero Scope 1 and 2 by 2030.

BACKGROUND

Bangor University continues our work to minimise our adverse environmental impacts by:

Bangor University's core business is to provide high quality teaching and research whilst taking good care of our staff, students, community, whilst also understanding that our activities have an impact on the environment. The University is committed to continually improving its environmental performance and meeting the requirements of ISO 14001:2015, which is an internationally recognised standard of environmental management.

Maintaining ISO 14001:2015 certification ensures that the University reduces its adverse environmental impact and improves its overall environmental performance. It does this by providing a blueprint for our environmental management system (EMS) and building a robust framework to support and deliver the EMS. To gain and retain ISO14001:2015 certified status, the University's EMS is subject to external audits by a UKAS accredited external auditing body. For more detailed information please refer to the Environmental Management pages on the website.

Bangor University will not only seek to protect our natural environment, but also actively pursue opportunities to enhance it, promote a culture of environmental stewardship amongst our staff and students and work towards the goals of sustainable development.

OBJECTIVES AND TARGETS 20/21

IMPACT AREA	TARGET	STATUS
Environmental Compliance	T1 Ensure compliance with all relevant legislation and obligations associated with our activities and prevent the pollution of the natural environment and demonstrate compliance	Achieved
Waste Management	T2 Achieve 62% reuse and recycling by July 2021	Not Achieved
Energy and Water Consumption	T3a Reduce energy use by 15% compared to 2018/19, as a function of i) m2 useful floor area and ii) FTE students & staff	Partially Achieved
	T3b Reduce water consumption by 3.5% compared to the previous year, as a function of i) m2 useful floor area and ii) FTE students & staff	Achieved
Travel and Transport	T4 Ensure Travel Planning & Sustainable Travel are a key consideration in development of the Estates Strategy/planning	Ongoing
Carbon, Emissions and Discharges	T5 Reduce Scope 1 & 2 emissions by 20% compared to 2018/19	Partially Achieved
Biodiversity	T6a Promote biodiversity conservation & improvement across the University estate	Achieved
	T6b Increase unimproved grassland/wildflower meadow area across the University estate	Not Achieved
	T6c Create a University Biodiversity Action Plan	Partially Achieved
Sustainable Procurement	T7 Continue to ensure sustainability is embedded within the procurement process and report to SSG on how this is being achieved	Ongoing
Environmental Awareness and Communication	T8a Increase level of engagement with environmental and sustainability messages/campaigns/content on digital platforms	Partially Achieved
	T8b Increase student awareness of environmental and/or sustainability related events, as measured by the Undeb Student Survey	Not Achieved
Education for Sustainable Development	T9 Promote the UNSDG curriculum mapping exercise across schools and colleges, and work with at least one additional school to map their curriculum	Achieved
Construction and Refurbishment	T10 Ensure environmental protection and the principles of sustainability are central within the Estate Strategy and that the achievement of the other EMS targets informs the objectives of any estate developments	Ongoing

MANAGING WASTE

Reducing, reusing, recycling and recovering waste is a key part of ensuring that the University is operating sustainably and that our students, staff and visitors are contributing to a circular economy. Waste is a resource, a valuable commodity that can be reused several times, altered or repaired, or made into something new.

Our waste statistics show commitment to reducing waste through re-use, recycling and energy recovery and to send as little waste as possible to landfill.

	2020/21	2019/20	% change from previous year
Total Waste Generated (Metric Tonnes - MT)	513.45	616.17	-16.67%
Total Reused and Recycled MT (Percentage of total)	282.12 (54.95%)	375.04 (60.75%)	
Total Sent to Energy Recovery MT (Percentage of total)	231.21 (45.03%)	241.69 (39.24%)	
Total Sent to Landfill MT (Percentage of total)	0.12 (0.02%)	0.04 (0.006%)	

Although the University did not meet its waste reduction target for 2020/21 (reuse and recycle 62% of our waste) there were many positive outcomes over the academic year.

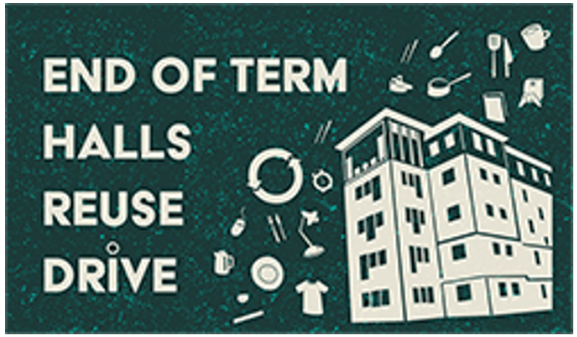
MANAGING WASTE

During 2020-21 the University rolled out a new semi-segregated recycling scheme - Better Apart. The new bins were chosen specifically because they were made from 100% recycled plastic and purchasing products made from recycled materials is an essential part of the circular economy, ensuring there is a viable market for recycled materials.

By separating the recycling this way, the University aims to improve recycling rates and produce cleaner, higher-quality recycling with a greater likelihood that the recyclets will be used here in Wales or in the UK.

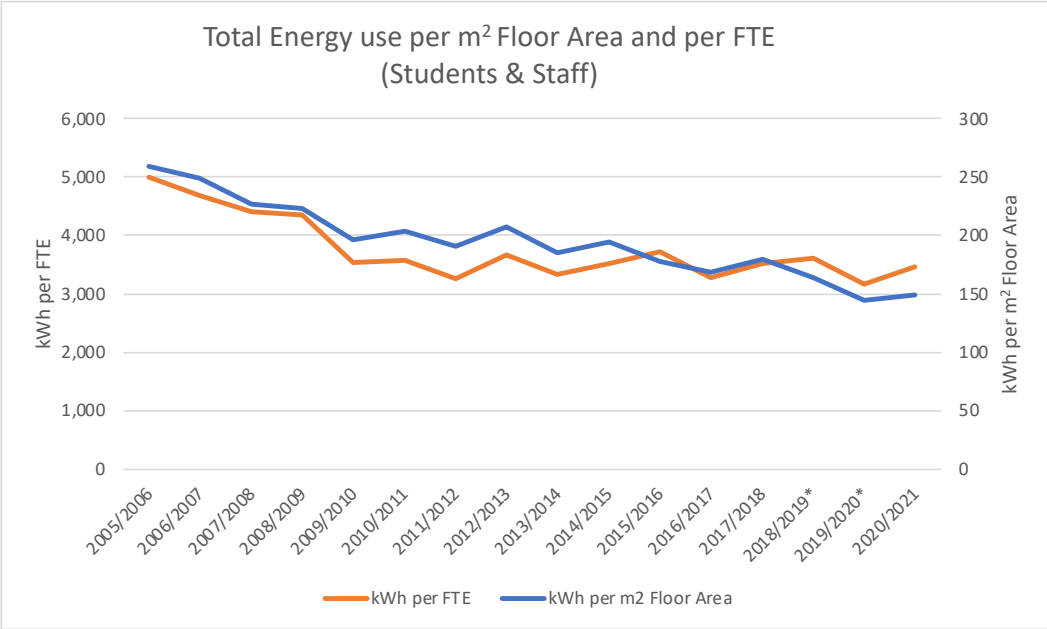
Current and Future Campaigns

- More recycling points outside
- Waste Awareness Week
- End of Term Hall Reuse Drive



ENERGY CONSUMPTION

Target 3a - Reduce energy use by 15% compared to 2018/19, as a function of i) m2 useful floor area and ii) FTE students & staff



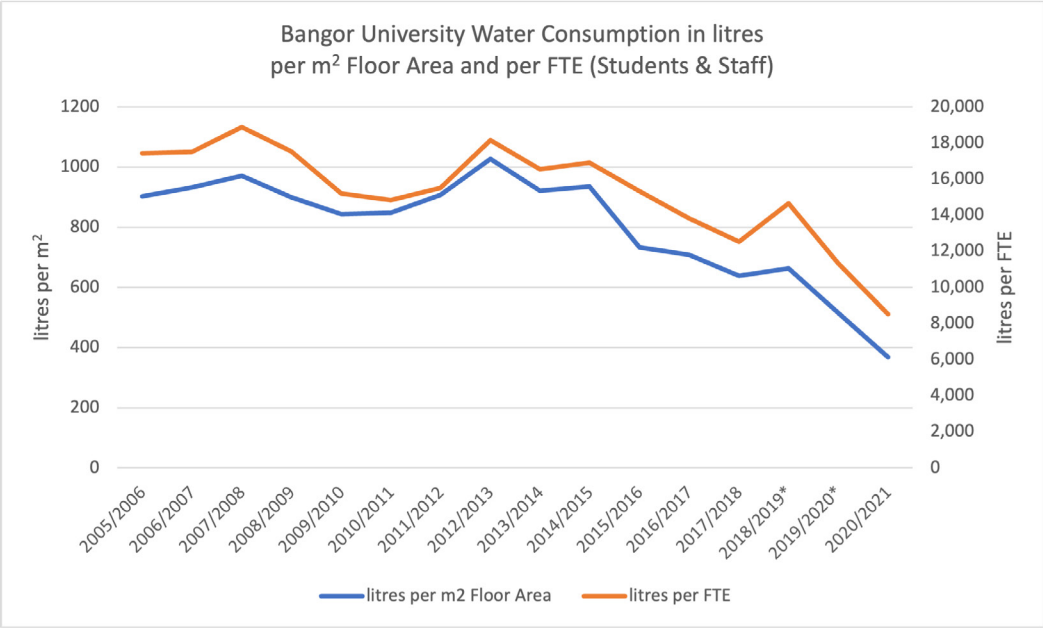
*Amended FTE data

	2020/21	Compared to 2018/19	Compared to 2005/06
Total Energy Consumption	34,001,031 kWh	-9.4%	-27.0%
i. Energy consumption per m2	149.32 kWh/m2	-8.8%	-42.4%
Performance against Target 3a		Partially Achieved	
ii. Energy consumption per FTE	3,464.33 kWh/ FTE	-4.3%	-30.7%
Performance against Target 3a		Partially Achieved	

	2020/21
Total Electricity Consumption	12,959,017 kWh
Total Gas Consumption	20,303,465 kWh
Total Heating Oil Consumption	663,726 kWh
Total LPG Consumption	74,823 kWh
On-site Generation (Solar)	64,048 kWh

WATER CONSUPMTION

Target 3b - Reduce water consumption by 3.5% compared to the previous year, as a function of i) m2 useful floor area and ii) FTE students & staff



*Amended FTE data

	2020/21	Compared to 2019/20	Compared to 2005/06
Total Water Consumption	83,710.01 m3	-29.2%	-48.4%
i. Water consumption per m2 useful floor area	367.61 litres/m2	-28.7%	-59.3%
Performance against Target 3b		Achieved	
ii. Water consumption per FTE (students & staff)	8,529.13 litres/ FTE	-24.8%	-51.1%
Performance against Target 3b		Achieved	

TRAVEL AND TRANSPORT

The University's 'Estate Vision 2030+' will be key in planning and ensuring sustainable travel and will encourage these concepts:

- Electrify the remaining vehicles in the University's fleet
- Continue the roll-out of electric vehicle charging points across the estate
- Consider new ideas to include in a Green Transport Plan

Read more about the Zero Emission Vehicles here: Campus Services Fleet Goes Electric

Bangor University has many deterrents across the estate to limit the amount of parking on campus. There are also incentives to encourage staff and students to change their mode of transport when commuting.

- Charging for parking permits for staff and students
- Barrier controlled access to carparks with swipe card technology for access
- Cycle to Work Scheme
- Promoting cycling, exercise and fitness for staff and students on Bangor University's website, including mapping access to cycle racks and showers - Active Bangor - cycle racks and showers around campus

CARBON, EMISSIONS AND DISCHARGES

During the 2020/21 academic year the University's carbon emissions from energy reduced slightly to 6,904.88 tonnes CO2e, compared to 7,348.41 tonnes CO2e in 2019/20 on location-based electricity calculations. However, market-based emissions increased slightly to 3,909.79 tonnes CO2e in 2020/21 from 3,792.53 tonnes CO2e in 2019/20.

Target: Reduce Scope 1 & 2 emissions by 20% compared to 2018/19:

Total Reported Emissions	2020/21	Compared to 2018/19	Compared to 2018/19
i. Location-based	6,904.88 tonnes CO2e	-16.67%	Partially Achieved
ii. Market-based	3,909.79 tonnes CO2e	-49.31%	Achieved

The University has committed to reducing energy-related Scope 1 and 2 carbon emissions to Net Zero by 2030. To reach this target opportunities are being explored to reduce gas used for heating the estate and implementing a programme of energy efficiency improvements.

Other core ideas introduced in the University's Estate Vision 2030+ that will help to reduce emissions are:

- Analyse and reduce utility consumption
- Produce digital models of energy consumption across the estate
- Generate more electricity on-site using renewable technologies
- Living Labs to teach us how to integrate technology
- Space optimization/analyse patterns of usage
- Identify potential research projects that will provide data

Scope 1 Emissions by Source	
Gas Consumption	3,718.78 tonnes CO2e
Heating Oil Consumption	163.79 tonnes CO2e
LPG Consumption	16.05 tonnes CO2e
Petrol Consumption (does not include boat fuel)	14.27 tonnes CO2e
Diesel Consumption (does not include boat fuel)	31.69 tonnes CO2e
Red Diesel Consumption	12.25 tonnes CO2e
Agricultural Activities	695.65 tonnes CO2e
Scope 1 Total	4,652.48 tonnes CO2e
Scope 2 Emissions by Source	
Electricity Consumption - (Location-based Method)	2,995.09 tonnes CO2e
Electricity Consumption - (Market-based Method)	0 tonnes CO2e
Scope 3 Emissions by Source	
Water Consumption	12.47 tonnes CO2e
Wastewater Produced	19.55 tonnes CO2e
Waste	9.41 tonnes CO2e
Grey Fleet	15.87 tonnes CO2e
Scope 3 Total	57.30 tonnes CO2e
Sequestration by land holdings	
Sequestration	-800 tonnes CO2e
Total Reported Emissions	
Total with location-based electricity	6,904.88 tonnes CO2e
Total with market-based electricity	3,909.79 tonnes CO2e

BIODIVERSITY

The University's Environmental Policy and Sustainability Strategy recognises biodiversity as one of the core areas of work and includes the objective to 'promote and increase biodiversity conservation and improvement across the University estate.'

Biodiversity targets were partially achieved during the 2020/21 academic year, despite the difficulties caused by Covid-19. Some of the contributions made towards those targets include:

- Biological surveys completed by surveyors and volunteers at Treborth Botanic Garden
- Treborth wildflower meadow survey completed in August 2020
- A draft Biodiversity Enhancement Plan was completed and is awaiting approval
- Educational events undertaken at Treborth Botanic Garden during the year included:
    - Botany of Christmas
    - Christmas Wreath Workshop
    - Tree Identification Walk
    - National Garden Scheme Open Day

Five priority habitats have been identified for biodiversity enhancement across the estate:

- Amenity Grassland and Amenity Planting
- Unimproved Grassland/Meadow - Conservation and Creation
- Scattered Trees - Maintenance and Planting
- Woodland - Conservation and Grant Capture
- Buildings and the Built Environment

The University's Biodiversity Enhancement Plan proposes a series of measures for the main habitats found across the estate. It also prioritises actions needed to protect and manage existing habitats for plants and wildlife, as well as identifying new areas for habitat creation.

CONSTRUCTION AND THE ESTATE STRATEGY

The University's 'Estate Vision 2030+' will demonstrate the vision for the next decade, and the principles of environmental protection and sustainability will guide and shape its recommendations. Some of these ideas are to:

- Establish a sustainable and safe environment for future generations
- Support and facilitate the delivery of our University's Strategy 2030 - A Sustainable World for Future Generations
- Focus on health and well-being and enable positive change
- Celebrate heritage, identity and sense of place
- Enhance student and staff experience as well as that of the wider community
- Provide a clear blueprint and roadmap for the next decade incorporate both the long-term view and shorter-term goals and explain how we will meet our environmental and sustainability goals

Considerations for the University's buildings have included:

- Re-use vs new build
- Demolition and calculating the embedded carbon costs
- Energy and thermal performance
- Shallow retrofit
- Deep retrofit and renovation

The vision also hopes to use technologies in the built environment, such as:

- Creating a digital twin of the University Estate
- IoT sensors monitoring lighting and temperature in every room
- Energy efficient HVAC systems
- Increased durability of materials requiring less maintenance
- Improved glazing allowing increased transmission of natural light
- Mechanical cooling negated through design

The University's buildings need to be:

Further discussions during consultations included taking advantage of the University's location and outdoor spaces to enhance health and wellbeing for all – from pockets of relaxation space in urban settings through to walks and activities at Treborth Botanic Gardens and improving public realm - safe environments and connectivity creating 'green arteries'.

PRIFYSGOL
BANGOR
UNIVERSITY